California Environmental Protection Agency
Air Resources Board

California Regulation for the
Mandatory Reporting of Greenhouse Gas Emissions

2013 GHG Data Reporting Hydrogen Production and Petroleum Refineries

March 20, 2014

Presentation Slides Available Here:

http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance-training.htm

Outline

- MRR Updates
  - What has changed?
  - When do these changes become effective?
- Hydrogen Production
  - Additional data reporting requirements
  - Reporting Product Data
- Petroleum Refineries
  - Applicability of revisions
  - (CWB discussed in separate training)

Updates to the Regulation for 2013 Data Reporting

Regulation Updates

- Revisions went into effect January 1, 2014
- Regulation available here: http://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/mrr-regulation.htm
- Most updates are effective for 2013 data reporting (see section 95103(h))
  - Provisions requiring new data or methods are effective for 2014 data reporting or 2013, using best available methods for data
- See "Applicability of 2013 Revisions" guidance spreadsheet
  - Lists all regulation changes and when they become effective
  - Good reference for identifying areas with revisions

Applicability of 2013 Revisions

- Excerpt of guidance spreadsheet
- http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance-docs.htm

Guidance for California's
Mandatory Greenhouse Gas Emissions Reporting
2/7/2014

California Environmental Protection Agency
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Revisions to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions:
Year of Implementation for 2013 Regulatory Amendments

**Note: 2014 = 2013 data reported in 2014, 2015 = 2014 data reported in 2015, and 2014 BAM means Best Available Methods may be used for 2013 data.*

#	Regulation Amendment	Regulation Section	Description of the Regulatory Update	Year Provision is Effective* (2014/2015)	Affected Reporting Subpart
1	10k Threshold Clarification	95101(a)(1)(B)	Clarify CO2, CH4, N2O included for 10k threshold	2014	General
2	Lead Reporting	95101(a)(1)(B)8., 95124	Require calculation and reporting of process emissions by lead producers	2014 BAM	Subpart R - Lead Production
3	Include Additional Subparts	95101(a)(1)(G)	Explicitly identify additional subparts for applicability, if they come to California	2014	General
4	Common Control / Ownership	95101(a)(3)	Specifies requirements for changing responsibility from/to owner to/from operator	2014	General
5	Reporting Threshold and Abbreviated Reporting Limitation	95101(b)(1)-(2)	Clarify CO2, CH4, N2O included for threshold; disallow abbreviated if total >25k for a 10k facility	2014	General
6	Hydrogen Fuel Cell	95101(b)(6)	Fuel cell emissions must be included in applicability determination	2015	General
7	Operators of LNG Production Facilities	95101(c)(10)	Require reporting by operators of LNG facilities that produce LNG from NG from interstate pipelines	2015	Subpart NN - Natural Gas, NGL, LPG, CNG, LNG Suppliers

Requirements and Reporting GHG Data in Cal e-GGRT

Hydrogen Production Revision Applicability

- 2014 BAM (Best Available Methods for 2013 data reported in 2014)
  - 95114(e)(1) - report C and H content of feedstocks
  - 95114(g) – report CH_4
  - 95114(i) – report and subtract transferred CO_2 and emissions reported elsewhere from your facility totals
  - 95114(j) - report on-purpose and by-product H_2 production
  - 95114(k) – report combustion CH_4 and N_2O emissions
  - 95114(l) – report flaring emissions
- 2014 (full reg requirements for 2013 data reported in 2014)
  - Clarification of source category
  - Report C content & mole wt. for fuels and feedstocks

Hydrogen Production

- Reporting Carbon and Hydrogen content and average molecular weight for all feedstocks

Equation P-1:

$$CO_2 = (\sum_{n=1}^{k} \frac{44}{12} * Fdstk_n * CC_n * \frac{MW}{MVC}) * 0.001$$

Facility Name:	
Reporter Name:	
Unit Name/ ID:	
Reporting Period:	
Comments:	
Unit Type:	Hydrogen Production Process Unit

Input Data

Month	[Fdstkn] = Volume of the gaseous fuel and feedstock used in month n (scf (at standard conditions of 68 °F and atmospheric pressure) of fuel and feedstock)	[CCn] = Average carbon content of the gaseous fuel and feedstock, from the results of one or more analyses for month n (kg carbon per kg of fuel and feedstock).	[HCn] = Average hydrogen content of the gaseous fuel and feedstock, from the results of one or more analyses for month n (kg hydrogen per kg of fuel and feedstock).	[MWn] = Average molecular weight of the gaseous fuel and feedstock from the results of one or more analyses for month n (kg/kg-mole)
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				

Hydrogen Emissions
Avoiding Double Counting

- You must report and subtract transferred CO_2 and emissions reported elsewhere from your facility totals
- You must perform these subtractions to avoid double counting these emissions
- Cal e-GGRT does not do these subtractions

Hydrogen Production On-Purpose

(covered product data)

- "On-purpose hydrogen" means hydrogen produced as a result of a process dedicated to producing hydrogen (e.g., steam methane reforming). Reporters must NOT include any:
  - Chemicals other than molecular hydrogen (e.g., CH_4 or steam)
  - H_2 later condensed and sold as liquid hydrogen
- Slide updated 5/8/2014 to reflect updated guidance here: http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/hydrogen-producers.pdf

Hydrogen Production By-Product

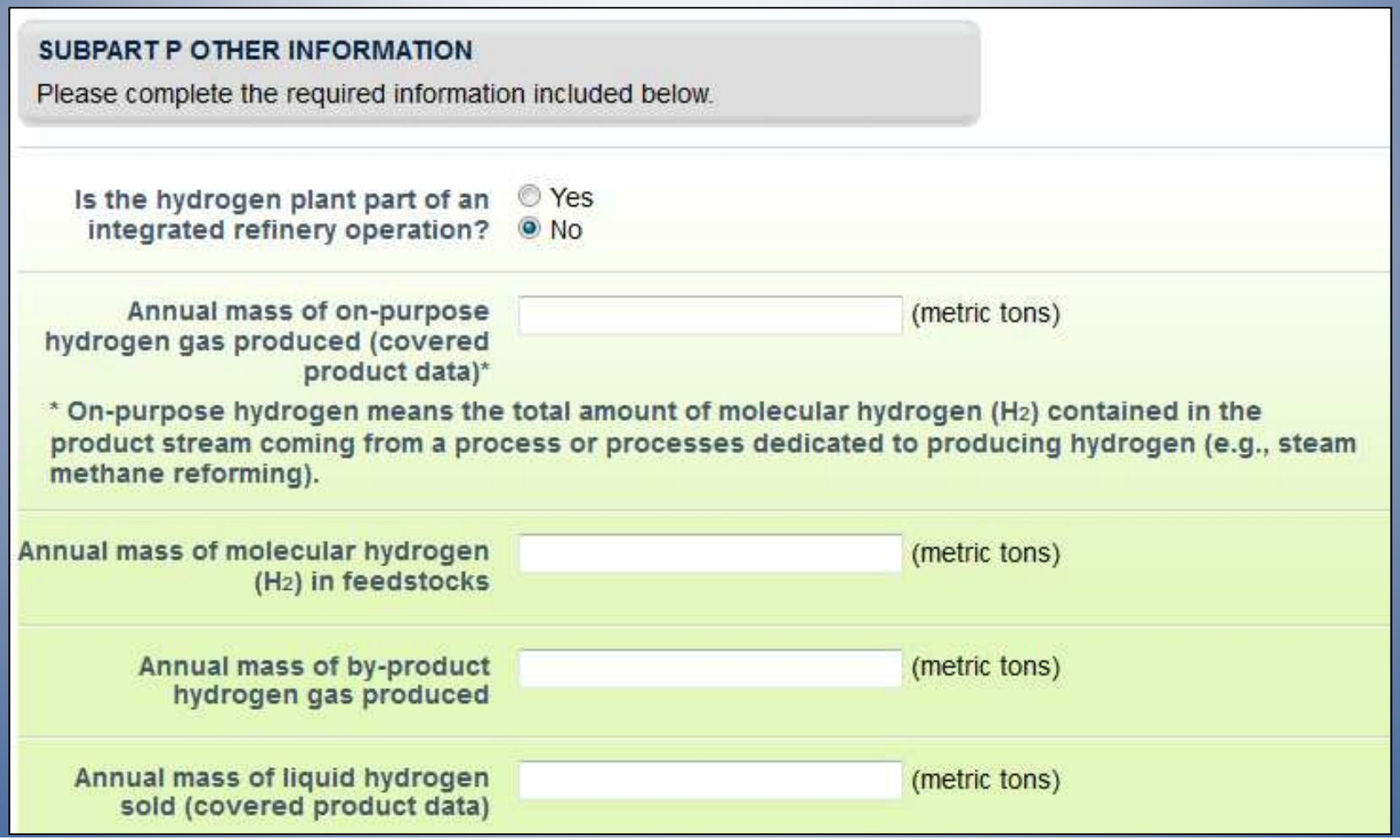
- "By-product hydrogen" means hydrogen produced as a result of a process or processes dedicated to producing other products (e.g. catalytic reforming). Reporters must NOT include any:
  - Chemicals other than molecular hydrogen (e.g., CH_4 or steam)
  - H_2 later condensed and sold as liquid hydrogen

Liquid Hydrogen Sold
(covered product data)

- "Liquid hydrogen sold" means the total amount of molecular hydrogen in liquid form sold to other entities
  - Based on sales records
  - Less any impurities

Hydrogen Production

- On-purpose and by-product reporting fields added to Cal e-GGRT and are shown below



SUBPART P OTHER INFORMATION

Please complete the required information included below.

Is the hydrogen plant part of an integrated refinery operation? ○ Yes ◉ No

Annual mass of on-purpose hydrogen gas produced (covered product data)* (metric tons)

*** On-purpose hydrogen means the total amount of molecular hydrogen (H_2) contained in the product stream coming from a process or processes dedicated to producing hydrogen (e.g., steam methane reforming).**

Annual mass of molecular hydrogen (H_2) in feedstocks (metric tons)

Annual mass of by-product hydrogen gas produced (metric tons)

Annual mass of liquid hydrogen sold (covered product data) (metric tons)

Hydrogen Production

- Additional hydrogen data reporting fields

Annual mass of all CO_2 captured, transferred off-site, and reported by the hydrogen production facility as a supplier of CO_2 as described in section 95114(i)		(metric tons)
Annual quantity of carbon, other than CO_2, collected and transferred off site in either gas, liquid or solid forms		(kg carbon)
Amount of carbon dioxide calculated and reported using other methods in the regulation [95114(g)]		(metric tons)
Amount of methane calculated and reported using other methods in the regulation [95114(g)]		(metric tons)

Hydrogen
Reporting Flaring Emissions

HYDROGEN PRODUCTION UNITS

Name/ID	CO_2 (metric tons)	Status[1]		Delete
H Unit 2		Incomplete	OPEN	✖
xyz		Incomplete	OPEN	✖

ADD a Unit

HYDROGEN PRODUCTION UNITS (Units monitored by CEMS)

Name/ID	Status[1]	Delete
No units have been added		

ADD a Unit Monitored by CEMS

FLARES

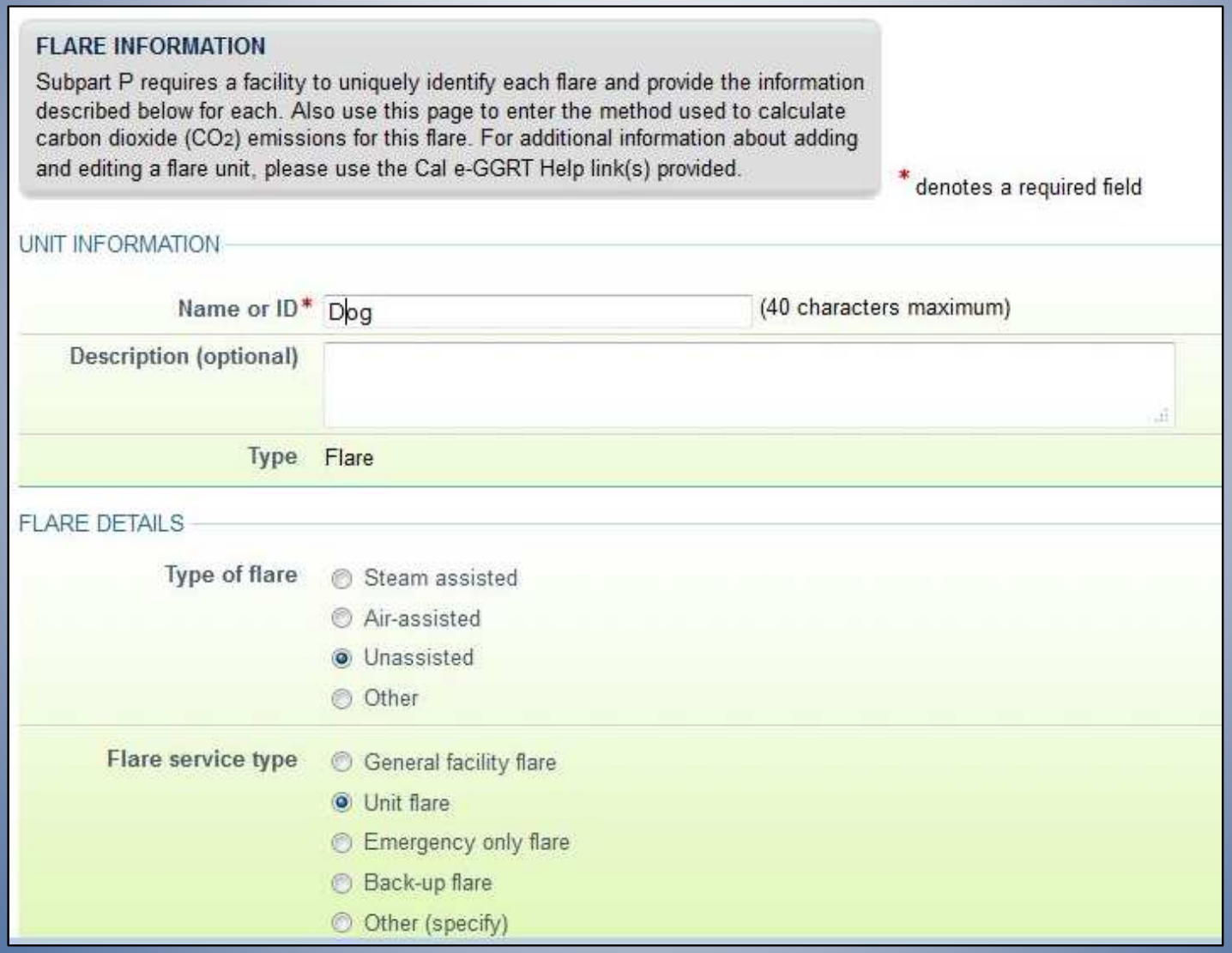
Name/ID	Type	CO_2 (metric tons)	Status[1]		Delete
Dog	Flare		Incomplete	OPEN	✖

ADD a Flare

Facility Overview

[1]A status of "Incomplete" means that one or more required data elements are incomplete. For details, refer to the Data Completeness validation messages in your Validation Report by clicking the "View Validation" link above (Note: if there are no validation messages for this subpart you will not see this link).

Hydrogen
Reporting Flaring Emissions



FLARE INFORMATION

Subpart P requires a facility to uniquely identify each flare and provide the information described below for each. Also use this page to enter the method used to calculate carbon dioxide (CO_2) emissions for this flare. For additional information about adding and editing a flare unit, please use the Cal e-GGRT Help link(s) provided.

* denotes a required field

UNIT INFORMATION

Name or ID* Dog (40 characters maximum)

Description (optional)

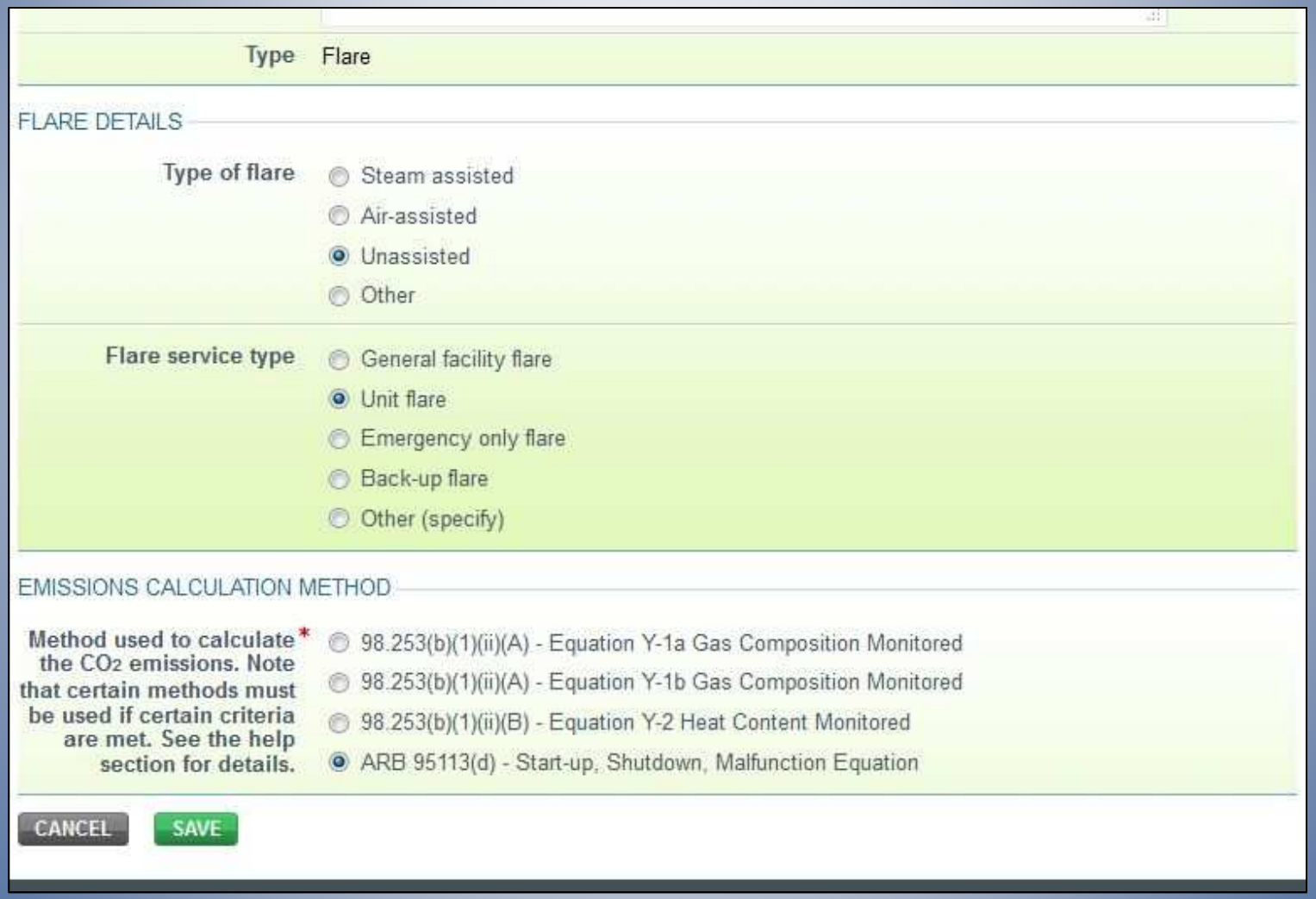
Type Flare

FLARE DETAILS

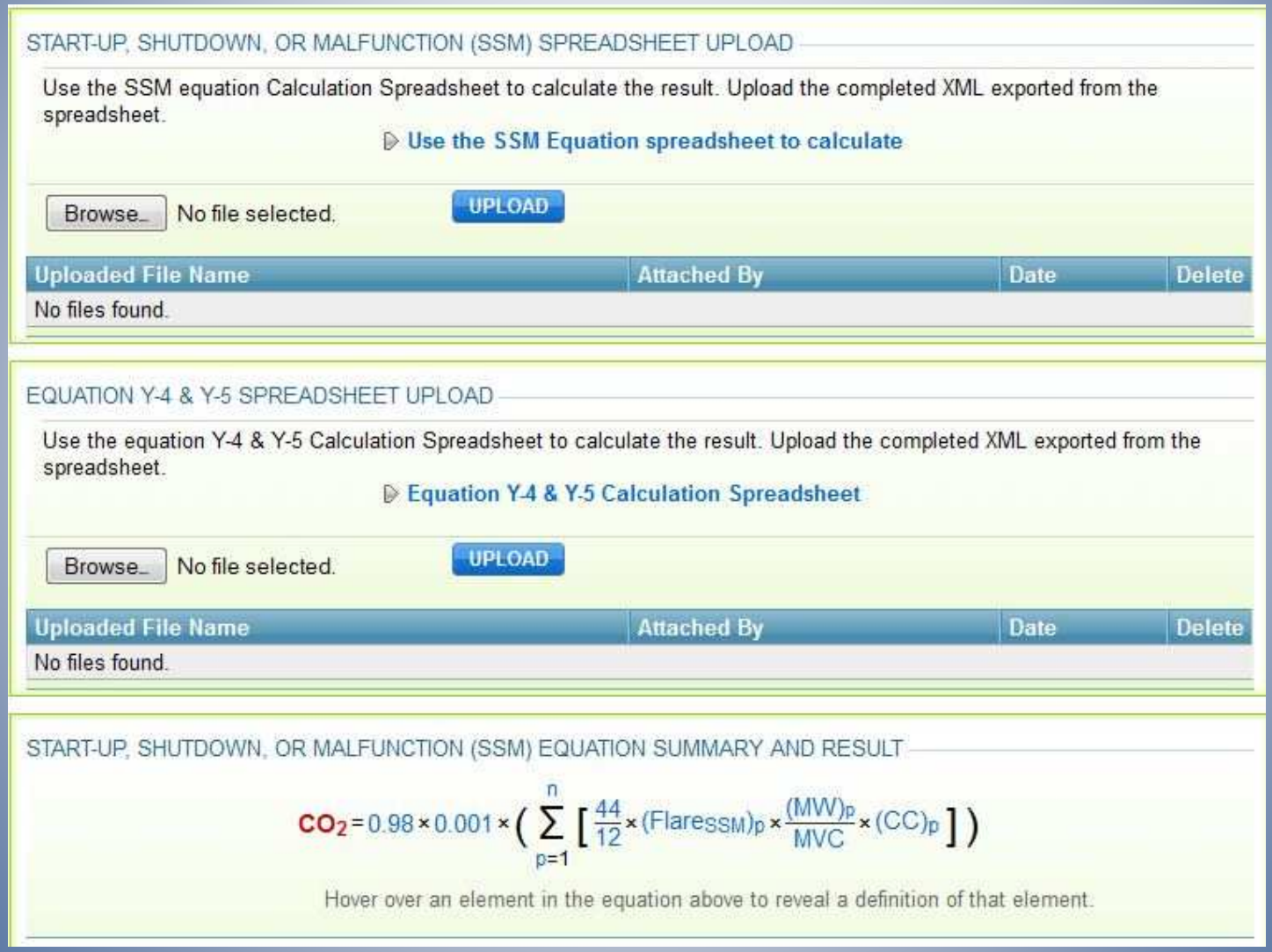
Type of flare
- Steam assisted
- Air-assisted
- Unassisted
- Other

Flare service type
- General facility flare
- Unit flare
- Emergency only flare
- Back-up flare
- Other (specify)

Hydrogen
Reporting Flaring Emissions



Hydrogen
Reporting Flaring Emissions



Reporting CH_4 and N_2O stationary combustion emissions (95114(k))

- CEMS
  - Report these emissions in Subpart P
- No CEMS
  - Report CH_4 and N_2O emissions in Subpart C
  - Create a new configuration in Subpart C
  - Name the configuration (e.g. H plant N_2O/CH_4)
  - Add fuel(s) to configuration
  - Select “enter my own” for CO_2, and enter zero
  - Let tool compute or enter your own values for CH_4 and N_2O

Petroleum Refineries Revision Applicability

- 2014 BAM (Best Available Methods for 2013 data reported in 2014)
  - no longer report CWT
  - for CWB must report annual volume unit throughput
- 2014 (full reg requirements apply for 2013 data reported in 2014)
  - 95113 – refineries are separate entities for reporting purposes
  - 95113(l)(1) - timing requirements for assessment of primary refinery products for materiality
  - 95113(l)(2) – provide Solomon EII documentation to verifier

Questions?

Additional Training Sessions

- ARB sector-specific training (check link for times)
  http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance-training.htm

- Contact ARB staff as needed for questions

Resource Web Sites

- Email reporting questions to: ghgreport@arb.ca.gov
- Reporting Guidance: Applicability, Metering
  http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance.htm
- Cal e-GGRT Tool Training: Registration, Subparts
  http://www.arb.ca.gov/cc/reporting/ghg-rep/tool/ghg-tool.htm
- Cal e-GGRT Main Help Page
  http://www.ccdsupport.com/confluence/display/calhelp/Home

Key Reporting Dates

Date	Activity
February 1	Regulatory deadline: Due date for electric power entities to register specified facilities outside California
February 13	Public release of Cal e-GGRT
April 10	Regulatory deadline: Reporting deadline for facilities and suppliers of fuels and carbon dioxide, except when subject to abbreviated reporting
June 2	Regulatory deadline: Reporting deadline for electric power entities and those subject to abbreviated reporting
July 15	Regulatory deadline: Deadline for corrections to RPS Adjustment data required for electric power entity data reports
September 2	Regulatory deadline: Final verification statements due (emissions data and product data)

GHG Reporting Contacts

Subject Matter	Contact
GHG Mandatory Reporting (General)	Brieanne Aguila, Manager 916.324.0919
Reporting Requirements, Stationary Combustion, Other Sectors (cement, glass, pulp and paper, etc.)	Patrick Gaffney 916.322.7303
Reporting Tool Registration and General Questions	Karen Lutter 916.322.8620
Electricity Generation and Cogeneration Facilities	Patrick Gaffney 916.322.7303
Electricity Retail Providers and Electricity Marketers	Wade McCartney 916.327.0822
Fuel and CO_2 Suppliers - Transportation Fuels, Natural Gas, LPG, CO_2	Syd Partridge 916.445.4292
Petroleum Refineries, Hydrogen Plants, Oil & Gas Production	Byard Mosher 916.323.1185
Product Data – Refineries, and Oil & Gas	Byard Mosher 916.323.1185
Greenhouse Gas Report Verification	Renee Lawver, Manager 916.322.7062
Chief – Climate Change Program Evaluation Branch	Rajinder Sahota, Chief 916.323-8503

END